CLAIMS

1. An enterprise server for communication for a supervisory control and data acquisition (SCADA) system, comprising:

    (a)   configurable server software running on memory in a computer;

    (b)   a configurable server interface adapted to receive at least one client request from at least one client application requesting status data on a specific device and the interface provides those requests to the client application;

    (c)   a configurable protocol interface in communication with the server software for building a message for the specific device using a device protocol;

    (d)   a configurable connection interface for connecting to said specific device and enabling the message to be transmitted to the specific device and receiving the specific device status data from the specific device and transmitting the status data to the configurable server interface using the device protocol; and

    (e)   caching the status data on said memory in said computer as cached data from the configurable server interface.

2. The enterprise server of claim 1, wherein said server software comprises an ability to request status data on a specific device at defined time intervals.

3. The enterprise server of claim 1, wherein said server software further comprises the ability to transmit the cached data to a client application.

4. The enterprise server of claim 1, wherein said cached data comprises a member of the group current operational information on a specific device, historical operational information received from a specific device, and combinations thereof.

5. The enterprise server of claim 4, wherein said operational information is a member of the group comprising: pressure data, temperature data, flow data, maintenance repair data, battery limit data, leak detection data, equipment run times, plant conditions and combinations thereof.

6. The enterprise server of claim 1, further comprising a configurable database interface communicating with a database for storing and compiling specific device datasets.

7. The enterprise server of claim 1, further comprising a configurable database interface comprising a communication protocol for communicating with a specific device, for collecting specific device datasets and writing the specific device datasets to the database.

8. The enterprise server of claim 1, further comprising interface diagnostics for one or more of the configurable interfaces to identify a member of the group comprising: the frequency of software errors, communication errors, types of errors occurring with one or more configurable interfaces as the interface communicates with a specific device, other errors and combinations thereof.

9. The enterprise server of claim 8, further comprising a barometer for a specific device for totalizing errors in communication to the specific device.

10. The enterprise server of claim 8, wherein said errors comprise a member of the group: framing errors, CRC errors, communication time outs and combinations thereof.

11. The enterprise server of claim 8, wherein said specific device and the configurable connection interface are connected by a channel, and said enterprise server further comprising a second barometer that can be used with the channel for totalizing the errors occurring within that channel.

12. The enterprise server of claim 1 further comprising interface control commands installed on the enterprise server to allow client initiated modifications to interface configurations during enterprise server operation.

13. The enterprise server of claim 1, further comprising server control commands to allow client initiated modifications to server software during enterprise server operation.

14. The enterprise server of claim 9, wherein said barometer is at least two barometers for totalizing errors by weighting by a factor of two, each error identified and by weighting by a factor of one, each successful response.

15. The enterprise server of claim 1, further comprising server diagnostics for use with the configurable server software to determine the frequency of communication errors and the type of errors, which occur with the configurable server software as it communicates with a specific device.

16.   The enterprise server of claim 6, further comprising database diagnostics for use with the database to identify errors in communication between the database and the specific device.

17.   The enterprise server of claim 6, wherein said database is a relational database.

18.   The enterprise server of claim 6, wherein said specific device datasets comprise compiled operational datapoints.

19.   The enterprise server of claim 1, wherein said computer is adapted to run on a windows-based operating system,

20.   The enterprise server of claim 1, wherein said computer is adapted to run on a NT-based operating system.

21.   The enterprise server of claim 1, wherein said configurable connection interface communicates via a global communication network.

22.   The enterprise server of claim 11, wherein the configurable software server is adapted to switch between a channel and a second channel upon indication of failure by the channel in use by the enterprise server.

23.   The enterprise server of claim 22, wherein said switching of channels automatically occurs if a certain number of attempts to establish a channel fails.

24.   The enterprise server of claim 8, further comprising a configurable logging interface running on the configurable server software and communicating with a software logging

53

program for tracking and viewing errors occurring in a channel or with a specific device and then storing the tracked errors.

25. The enterprise server of claim 24, wherein said configurable logging interface communicates over a global communication network with a second computer hosting the software logging program.

26. The enterprise server of claim 24, wherein said software logging program resides on said enterprise server.

27. The enterprise server of claim 1, further having a configurable AES interface disposed on said enterprise server adapted for communicating with an AES service program, which runs on the enterprise server.

28. The enterprise server of claim 27, wherein said configurable AES interface can communicate over a global communication network with a second computer hosting the AES service program running on an NT-type operating system.

29. The enterprise server of claim 27, wherein a relational database stores the configuration of the AES interfaces.

30. The enterprise server of claim 27, wherein client initiated modifications of server software and interface configurations occur during operation of the enterprise server.

31. The enterprise server of claim 1, further having a configurable enterprise interface for communicating with a second enterprise server.

32.   The enterprise server of claim 1, wherein a plurality of device protocols are supported simultaneously by said configurable protocol interface.

33.   A method for communicating between configurable server software and a specific device comprising the steps of:

5   (a) receiving a client request from a client application for the status on a specific device via a server interface;

(b) converting the client request into a message using a protocol interface;

(c) transmitting the message to the specific device using a connection interface;

(d) receiving a response from the specific device using the connection interface;

10   (e) interpreting the response using the protocol interface, forming an interpreted response;

(f) storing the interpreted response as cached data in the configurable server software; and

(g) transmitting the interpreted response to the client application.

34.   A method for obtaining a dataset from a specific device using configurable server software comprising the steps of:

15   (a) receiving a client request from a client application for a dataset on a specific device via a server interface;

(b) converting the client request into a message using a protocol interface;

(c) transmitting the message to the specific device using a connection interface;

(d) receiving data from the specific device using the connection interface;

(e) interpreting the data using the protocol interface, forming a dataset;

(f) storing the data to a database; and

(g) transmitting the completion of the storing of the data to the client application.

5